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U.S. President's Malaria Initiative

IRS Team Leader Guide

September 2018



U.S. PRESIDENT'S MALARIA INITIATIVE

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Introduction

As a Team Leader with the IRS Program, you will be responsible for the conduct, performance and output of an assigned group of spray operators, normally 5 in number. The purpose of this guide is to describe the roles and responsibilities that come with your position as Team Leader. You should familiarize yourself with the contents of this guide before the spray campaign begins.

1 Time Keeping

- Ensure that your team departs for the community at the agreed time each day.
 - It is your responsibility to ensure that all the spray operators on your team:
 - Report to the operation site on time.
 - Take their breakfast and hydrate in a timely manner.
 - Receive their equipment and materials promptly.
 - Report any cases of absenteeism to your Supervisor immediately.
- Ensure that at the end of the work day all your team members return to the operation site or soak pit at the agreed time.



Spray operators leaving for the community at the start of the work day.

2 Daily Health Checks for Spray Operators

- Complete a brief health check of the spray operators on your team each morning. Do not allow any of them to work if they exhibit any of the following signs:
 - Breathing difficulties
 - Headache
 - Fatigue
 - Weakness
 - Alcohol (or any other type of) intoxication
 - Drowsiness
 - Eye irritation
 - Skin irritation
 - Any other form of ill-health or discomfort
- Continue to check for any of the signs listed above throughout the work day.
 - Stop any spray operator who displays any of the above signs from working as soon as you become aware of them.
- Report all suspected cases of ill-health to the health workers.



A team member prepared to work at the community.

3 Receiving and Distributing Materials to Spray Operators

- Ensure that every spray operator receives the correct sizes of personal protective equipment (PPE) at the beginning of the campaign.
 - Ensure that all the PPE items are in good condition.
 - Return any ill-fitting or inappropriate PPE items to the storekeeper in exchange for the correct items. Report to your Supervisor if you find any difficulty with this.
- Ensure that every spray operator on your team receives all of their equipment and materials required every morning.
- Sign for all the items you receive on behalf of your team each day.
- Sign for all the equipment that is handed to your team for the length of the spray campaign.
- Sign against all items returned to the storekeeper.



A team member with all the PPE items received from her Team Leader.

Insecticide

- Confirm that you have received enough insecticide to meet your team's needs at the beginning of the work day.
- Sign against the number of sachets or bottles received at the start of the day.
- Provide each spray operator with enough insecticide to spray the number of houses required to meet their daily target.
- Hold onto any extra insecticide and only distribute it after confirming that it is really required.
- Keep a record of all insecticide distributed to each spray operator.



A Team Leader distributing insecticide to spray operators.

4 Proper Handling of Spray Equipment and Materials

- Sprayers have to meet the specifications recommended by the World Health Organization, including the requirement to be installed with a low pressure control flow valve (CFV). Two types of compression sprayers are presently being used on the PMI VectorLink project:
- Ensure that all the equipment and materials provided to you and your team members are:
 - In proper working condition.
 - Handled with care.
 - Used for only the purposes they are intended for.
- Negligent and malicious handling of all materials and equipment may result in penalties.



Proper handling of a sprayer and materials.

5 Personal Protective Equipment (PPE)

- Always dress in a full set of clean PPE before beginning work.
- Ensure that the spray operators are also wearing PPE before they begin to spray. This includes:
 - Overalls
 - Helmet with Face Shield
 - Dust Mask
 - Gloves
 - Rubber Boots



Full sets of PPE ready for the spray team.

Tips

- Wear the overalls outside of the boots.
- Wear the gloves outside of the overall sleeves.
- If any of the PPE items do not fit you or your team comfortably, or are damaged (e.g., torn), return it to the store in exchange for appropriate materials.



A spray team wearing PPE.

6 Team and Spray Operator Performance Targets

- You are responsible for knowing the daily performance targets of your team, reminding them of these targets, and ensuring that they are met.
- Your performance is measured against the achievement of the daily team targets.
- You should know the average number of structures each spray operator is expected to spray per day.
 - The daily target number of structures to be sprayed by each spray operator is ____.
- You should know the average number of structures each sachet (or bottle) of insecticide is expected to cover.
 - Each sachet (or bottle) of insecticide is expected to cover an average of ____ structures.



A spray operator at work.

7 Allocation of Work to Spray Operators

- Each day, allocate each spray operator enough houses to spray in order to meet their daily target.
 - Allocate each spray operator houses that are in close proximity with each other in order to minimize the time and distance required to move between the houses.
 - Where the houses are smaller in size than average, allocate the spray operator a higher number than the target, but to a reasonable limit.
 - Do not allocate a spray operator fewer houses than the target.
 - Where necessary, re-allocate houses among spray operators to ensure that the team achieves its daily targets.
 - Ensure that spray operators on your team support each other to complete work on time.
 - Follow the agreed spray calendar as you allocate work to the spray operators.
 - Consult your Supervisor if for some reason you are not able to stick to the spray calendar.



A Team Leader allocating work to a spray operator.

8 Household Mobilization

- Coordinate with the Community Mobilizers and your Supervisor to confirm that the villages you are going to work in have been mobilized.
- As you move around the community allocating work and supervising spray operators, take time to inform the beneficiaries of the estimated time that spray operators will be expected to reach their houses.
- Advise the beneficiaries about the steps they should take to make their houses ready for spraying, including tethering any dogs that may pose a threat to spray operators.
- Visit the communities your team expects to spray the following day and advise them to get ready.
- Call on local community leaders and alert them about the presence of the spray team.



A Team Leader mobilizing households ahead of the spray operators.

9 Conduct in the Community

- Observe the following, and ensure that spray operators do the same:
 - Be polite, courteous and respectful when speaking with members of the community.
 - Inform the beneficiaries that the spray program is funded by the US Government.
 - Let them know that spraying will help protect them and their families from malaria.
 - Explain the steps that will be taken to prepare their households for spraying.
 - Explain to the beneficiaries what they should do after their houses are sprayed.
- Ensure that spray operators seek the permission or consent of an adult household member before they enter any homes.
- Immediately notify the health center, and your supervisor, if there is any health related adverse incident, such as reaction to insecticide exposure.



Be respectful when interacting with members of the community.

10 Preparing Houses for Spraying

- Check that all moveable household items are removed from houses before spray operators begin spraying. Such items would include:
 - Food and food containers
 - Water and water containers
 - Cooking utensils
 - Items hanging on walls
 - Clothing
 - Toys
 - Furniture
 - Mosquito nets
 - Large items should be moved to the center of the room and covered with a plastic sheet.
- Any rooms that are occupied by people unable to move out, such as the sick, should not be sprayed.
- Doors and windows should be kept closed as the home is sprayed. However, if spray operators need more lighting as they spray, they can open slightly a door or window. The open window or door should not be in the direction the spray operator is applying insecticide.

Wall hangings, Posters, Pictures & Other Items on the Wall

- Determine whether the items are kept permanently on the wall or not.
- Spray operators should spray over items that are permanently fixed on the wall.
 - If the item can be lifted off the wall, spray operators should spray its underside, and the wall surface under it.
 - If they encounter immovable furniture close to the wall, spray operators should introduce the lance between the wall and object and spray. (Note that it may not be possible to maintain the correct distance).
- Put away any household items outside the house that may be stored close to the eave.



Large items should be moved to the center of the room and covered with a plastic sheet.

11 Household Safety

- Before spraying, spray operators should make sure that children and animals are kept at least 10 meters away from the house during pesticide mixing and spraying.
- Spray operators should inform beneficiaries that:
 - They should wait at least 2 hours before entering any house that has been sprayed, to allow the walls to dry.
 - After the 2 hours, they should open the doors and windows for 30 minutes to let in air.
 - Before people and animals are allowed to enter the home, the floor should be swept.
 - Any insects or dirt should be thrown into a pit latrine, or buried in a pit at least 50 cm deep.
 - Domestic animals and pets should not be allowed to feed on any dead insects from the sprayed home.
 - The sprayed walls should not be cleaned, painted or plastered.

12 Supervising Insecticide Mixing

- Complete the Directly Observed Spraying (DOS) Form when you supervise mixing of insecticide. Ensure that spray operators are abiding by the following guidelines:
 - The final volume of diluted insecticide should be 7.5 liters.
 - When mixing, place the sprayer on top of the plastic sheet and on firm ground outside the house, away from any household items.
 - Use a filter cloth to sieve all the water being introduced into the spray tank.

For Liquid Formulations (such as Actellic 300CS):

1. Introduce 3 liters of water through the filter cloth or sieve into the spray tank.
2. Remove the sieve and then completely empty the content of the insecticide bottle into the tank. Remember to shake the bottle before opening it.
3. Use the filter cloth to sieve the water you will use to rinse the empty insecticide bottle
4. Rinse the empty insecticide bottle into the spray tank using half a liter of water. Repeat this two more times to make it a total of 3 rinses.
5. Close the empty bottle tightly and put it back in your haversack
6. Close the lid of the sprayer
7. Pump the sprayer with 5 full strokes
8. Pick up the sprayer with both hands. Hold it by the tank body and vigorously shake it side to side, 10 times
9. Place the sprayer back on the plastic sheet
10. De-pressurize the sprayer
11. Open the lid and using the filter cloth, add water up to the 7.5 liter mark. (If necessary, use your flashlight to confirm the position of the 7.5l marking)

12. Place your foot firmly on the sprayer's foot rest with the sprayer to the side of your body
13. Pump the sprayer
14. to the 55psi mark if using a Hudson sprayer
15. or, if using a Goizper sprayer, till the safety valve begins releasing pressure
16. Listen for leakages as you pressurize the sprayer, and notify your team leader if you notice that pressure is escaping from the tank



*Mixing
insecticide
with a liquid
formulation.*

For Powders and Granules (such as SumiShield 50WG):

1. Introduce 3 liters of water through the filter cloth or sieve into the spray tank.
2. Remove the sieve and then completely empty the contents of the insecticide sachet into the tank
3. Fold the empty sachet in half and put it back in your haversack
4. Close the lid of the sprayer
5. Pump the sprayer with 5 full strokes
6. Pick up the sprayer with both hands. Hold it by the tank body and vigorously shake it side to side, 10 times
7. Place the sprayer back on the plastic sheet
8. De-pressurize the sprayer
9. Open the lid and using the filter cloth, add water up to the 7.5 liter mark. (If necessary, use your flashlight to confirm the position of the 7.5l marking)
10. Place your foot firmly on the sprayer's foot rest with the sprayer to the side of your body
11. Pump the sprayer
 - to the 55psi mark if using a Hudson sprayer
 - or, if using a Goizper sprayer, till the safety valve begins releasing pressure and the green mark shows
12. Listen for leakages as you pressurize the sprayer, and notify your team leader if you notice that pressure is escaping from the tank.



Mixing with a soluble sachet.

13 Supervising Spray Techniques

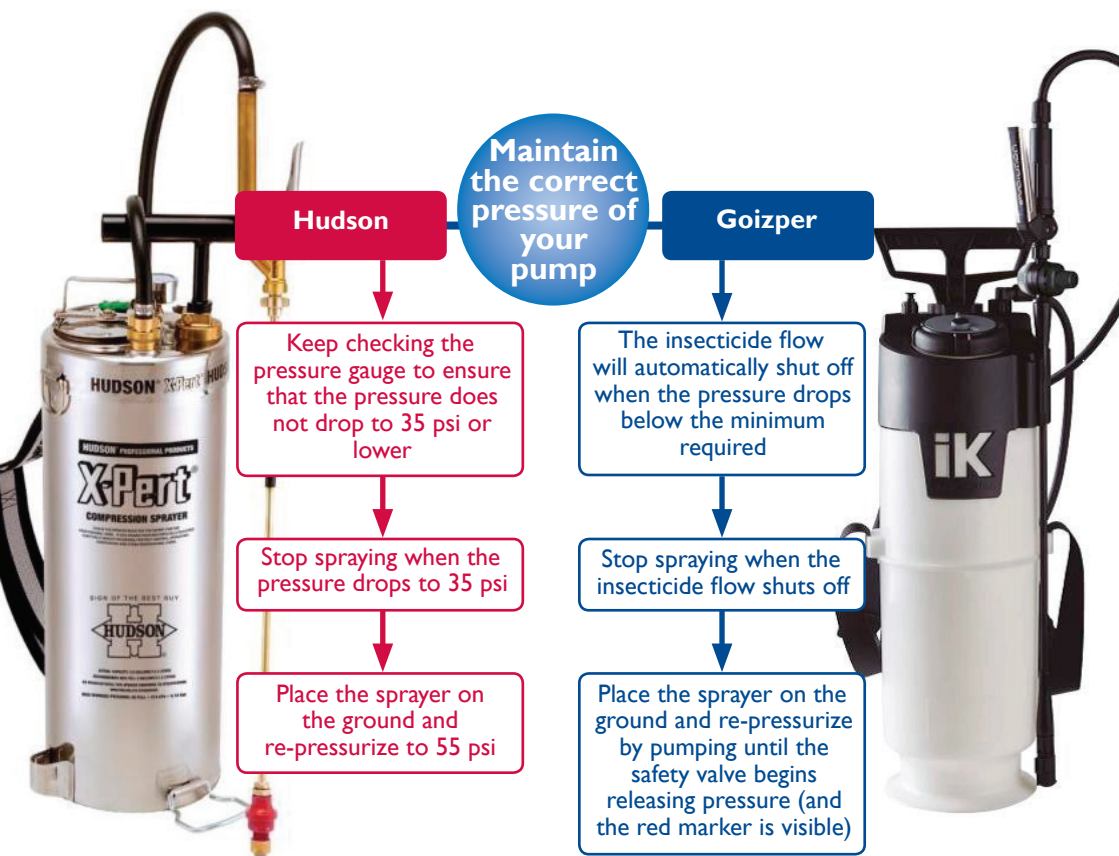
- Ensure that spray operators are abiding by the following guidelines:
 1. Correctly wear the sprayer, using the shoulder strap(s). If you are using the Hudson-type sprayer, make sure you are able to read the pressure gauge.
 2. Ensure that there is adequate lighting before you begin applying insecticide. Use your free hand to hold the flashlight to light the work area. If you require more light, keep one door or window slightly open to let in natural light. (Ensure that you do not spray directly into the opening).
 3. Hold the trigger with one hand. The tip of the nozzle of your sprayer should be 45 cm away from the wall when you hold the lance horizontal to the wall (“middle position”). This will ensure you that you achieve the correct swath width of 75 cm.
 4. Begin spraying at the top of the wall (“top position”), moving your arm in a smooth pattern through the “middle position” to the “bottom position”.
 5. Maintain the correct speed (rhythm) when spraying. As you were trained, cover 2 meters of wall surface in 5 seconds.
 6. After covering the first swath, take a step to the right, and resume spraying from the bottom to the top.
 7. Ensure that you make a 5 cm overlap with each successive swath.
 8. Always move towards the right of the surface to be sprayed. The exception being if you are left handed and maybe more comfortable spraying towards the left of the spray surface.
 9. Shake the sprayer vigorously after every 10 successive swaths.



*Always begin
spraying at the
top of the wall.*

Common Errors Made by Spray Operators during Spraying:

- Not observing the correct distance of the nozzle tip from the spray surface (45 cm).
- Spraying with the wrong rhythm/speed, i.e., too fast or too slow.
- Spraying with low pump pressure.
- Not shaking the sprayer regularly during spraying.
- Continuing to spray despite insecticide leakages from parts of the sprayer.
- Continuing to spray with blocked and worn nozzles.
- Spraying surfaces that do not qualify, e.g., metallic and glass surfaces.
- Not covering immovable household items left in the house during spraying.
- Not correctly securing the lance and nozzle while moving between structures in the community.



14 Trouble-shooting Blockages in Equipment

- At all times, carry the appropriate tools for emergency repair and servicing of sprayers in the field.
- If the sprayer ceases to spray, it may be a result of either of 2 things:
 1. That the pressure has dropped below the level allowable by the CFV;
OR
 2. That there is a blockage in the equipment

To ensure that a drop in pressure is not the issue:

1. First check the gauge, if using a Hudson type sprayer. If the gauge has gone below the minimum working pressure mark, then re-pressurize to 55psi.
2. If using the Goizper type of sprayer, pressurize until the safety valve begins releasing pressure and turns green.
3. If in spite of pressurizing, the equipment still is unable to spray, there likely is a blockage. The commonest point of blockage is the nozzle, followed by the CFV (if using an external red CFV).



To unblock a nozzle, carry out the following steps:

1. De-pressurize your sprayer
2. Spread the plastic sheet on the ground outside the structure being sprayed.
3. Pour some clean water into your container/jug and place it on the sheet. Unscrew and insert the nozzle in the container.
4. Using the soft tooth brush provided to your team leader, gently brush the tip of the nozzle repeatedly. Never insert any hard object into the nozzle tip as it will become damaged.
5. If in spite of this step the nozzle still doesn't work, request for a new nozzle from your Team Leader.

To unblock a CFV, carry out the following steps:

1. De-pressurize your sprayer
2. Spread the plastic sheet on the ground outside of the structure being sprayed.
3. Pour some clean water into your container/jug and place it on the sheet. Unscrew and insert the CFV in the container.
4. Scoop water into the hollow of the CFV having a tiny metal valve.
5. Using a screw driver (from the Team Leader kit), press the metal valve till water drips out from the other end of the CFV. Repeat the process three times.
6. Re-assemble the CFV and the nozzle and pressurize the equipment before attempting to spray.



15 Handling Leftover Insecticide & Contaminated Waste

- Empty insecticide packaging (containers), and used dust masks, are considered to be contaminated waste.
- Pour any mixed insecticide in sprayers returned to the operating site into barrel number 1.

Hand over all empty insecticide sachets/bottles and used dust masks to the Storekeeper at the end of the day before going to the wash area.



Remember to always wear the PPE when disposing of the leftover insecticide.

16 Progressive (Triple) Rinse Procedure*

For end of the day clean-up for fixed soak pit, ensure that spray operators follow these guidelines:

- Wear full PPE when carrying out the progressive (triple) rinse procedure.
- Pour all leftover insecticide from the field into barrel 1, which should always be covered
- From barrel 2, take 2 liters of water and pour into the spray tank
- Pressurize the sprayer with to allow the CFV to work and shake it, then discharge the some of the solution into barrel 3 by pressing the trigger and discharging through the nozzle
- De-pressurize the sprayer and empty the remaining solution into barrel 3
- Take 2 liters of water from barrel 4, repeat the same process of pressurizing and agitating the sprayer, discharging the some of the liquid into barrel 5 by pressing the trigger and discharging through the nozzle before emptying the remainder into barrel 5.



A spray operator washing equipment using the Progressive Rinse Procedure.

*Reference: PMI BMP Manual

- Take 2 liters of water from barrel 6, repeat the same process of pressurizing and agitating the sprayer, discharging the some of the liquid into barrel 7 by pressing the trigger and discharging through the nozzle before emptying the remainder into barrel 7.
- After barrel 7, dismantle the CFV, nozzle and strainer and use the clean water from the additional container to clean them with the toothbrush (nozzle and strainer) and screw driver for CFV.
- After unscrewing the nozzle and CFV, use the CFV to scoop water from the additional container using the hollow side that has a metal tip at the center. Press the screw driver against this metal tip until all the scooped water flows out from the other side of the valve. Repeat this process three times.
- Thereafter, reassemble the CFV, nozzle, and strainer.
- Wash your face shield, gloves, boots and plastic sheet using soap, and water from the additional container.
- Hang the spray tank upside down on the pump hanger.
- Hand over your overalls to be washed.
- Take a full-body shower or bath, using soap, in the designated bathing area at the operating site.



Spray operators cleaning their equipment at the end of the work day.

If using a mobile soak pit:

- Pour all leftover insecticide from the field into barrel 1, which should always be covered.
- From barrel 2, take 2 liters of water and pour into the spray tank.
- Pressurize the sprayer with to allow the CFV to work and shake it, then discharge the some of the solution into barrel 1 by pressing the trigger and discharging through the nozzle.
- De-pressurize the sprayer and empty the remaining solution into barrel 1.
- Take 2 liters of water from barrel 3, repeat the same process of pressurizing and agitating the sprayer, discharging the some of the liquid into barrel 1 by pressing the trigger and discharging through the nozzle before emptying the remainder into barrel 1.
- Take 2 liters of water from barrel 4, repeat the same process of pressurizing and agitating the sprayer, discharging the some of the liquid into barrel 1 by pressing the trigger and discharging through the nozzle before emptying the remainder into barrel 1.
- After barrel 4, dismantle the CFV, nozzle and strainer and use the clean water from barrel 4 to clean them with the toothbrush (nozzle and strainer) and screw driver for CFV.
- After unscrewing the nozzle and CFV, use the CFV to scoop water from the additional container using the hollow side that has a metal tip at the center. Press the screw driver against this metal tip until all the scooped water flows out from the other side of the valve. Repeat this process three times.
- Thereafter, reassemble the CFV, nozzle, and strainer.
- Wash your face shield, gloves, boots and plastic sheet using soap, and water from barrel 4.
- Distribute waste water from barrel 1 into spray tanks and leave on the side.
- Remove your PPE and wash your hands and face before leaving the wash area.
- Hand over your overalls to be sent to the operations site.

17 How to Fill Out the Spray Performance Tracking Sheet

Data is entered each day by team. The source of the data is the Daily Team Leader Summary Report.

Instructions for completing the Spray Performance Tracking Sheet

Date	Enter the calendar date for each day of work, e.g., 12/06/2014
Number of Spray Operators (A)	Enter the number of spray operators who worked on the respective day
Number of Structures Found	Enter the total number of structures found by all the spray operators on the team
Number of Structures Sprayed (B)	Enter the total number of structures sprayed by all the spray operators on the team
Number of Sachets/ Bottles Used (C)	Enter the total number of Sachets or bottles of insecticide used by all the spray operators on the team
Average Number of Structures Sprayed per Sachet/Bottle (D)	Calculate by dividing B by C ($D = B/C$)
Average Number of Structures Sprayed per Spray Operator (E)	Calculate by dividing B by A ($E = B/A$)



A Team Leader completing the Spray Performance Tracking Sheet.

18 Monitoring & Evaluation

- **Spray Data**
 - Check the accuracy of the data recorded by spray operators.
 - Ensure that household and structure identification information (name, IRS number) is fully filled out;
 - Check that all structures found, sprayed, unsprayed, population protected, etc., are accurately recorded.
 - Confirm that the headers on the Daily Spray Operator Forms are fully filled out while the Spray Operators are still out in the field treating structures. This data includes:
 - The date;
 - The Team Leader code/spray team number;
 - Geographical information indicating the location of spray.



A Team Leader checking the accuracy of data recorded by a spray operator.

- Use the Error Eliminator (EE)
 - At the end of the day, before leaving the field, use the Error Eliminator (EE) to check the completeness and accuracy of data.
 - If errors are found, have the Spray Operators correct data on the forms before returning to the operation site.
- Common errors to look out for:
 - Missing or incorrect recording of IRS Card Number/Structure ID.
 - Missing reason for unsprayed structure.
 - Incorrect counting of populations; children incorrectly not included in total population figure or male/female count.
 - The number of eligible rooms/structures sprayed is incorrectly recorded as *more* than the number of eligible rooms/structures found.
 - The number of pregnant women/children using a mosquito net is incorrectly recorded as more than the number of pregnant women/children recorded as living in the household.
- Physically marking structures as sprayed:
 - Ensure that the Spray Operators are marking houses correctly with marker or chalk upon completing their visit to a household.
 - Ensure that every structure *not sprayed* is recorded on the Daily Spray Operator Form.
 - In the case of refusal, speak with the residents to try to persuade them to accept the spray.



A spray operator marking a house he had just finished spraying.

19 First Aid

Notify your Supervisor immediately if any of the following occur:

Inhalation of insecticide mist

- Have the spray operator exit the house immediately.
- Have the spray operator sit down outside in the shade.
- Arrange for the spray operator to be taken to a Health Center.

Skin contact

- Have the spray operator off all contaminated clothing immediately.
- The spray operator should wash off all parts of the body that have contacted the insecticide immediately with soap and plenty of water.
- If skin irritation persists, inform your supervisor, and arrange to take the spray operator to a Health Center.

Eye contact

- Have the spray operator rinse eyes immediately with clean water, also under the eyelids, for at least 15 minutes.
- Arrange to take the spray operator to a Health Center for examination.

As you work,
please remember:



NO SMOKING



NO DRINKING



NO EATING



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